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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/971,711 | 10/09/2001 | Satoshi Sugaya | Q66406 | 4242 |

7590 08/28/2003

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| EXAMINER |
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JACKSON, ANDRE K

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| ART UNIT | PAPER NUMBER |
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2856

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/971,711

Applicant(s)

SUGAYA ET AL.

Examiner

André K. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claim 2 is objected to because of the following informalities:

Regarding claim 2, line 1 of the claim "clamed" should be –claimed–

–.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 2-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Sone.

Regarding claim 4, Sone discloses a "A system for feedback control of air/fuel ratio in ic engine with means to control current supply to oxygen

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sensor " which has an insulating substrate (32), a moisture sensitive layer (42), a lower electrode (36) having a noble metal (Column 7), an upper electrode (40) having a noble metal and porous body (Column 7) and where the upper electrode is joined to the moisture sensitive layer, part of the substrate (Figure 2) and a heater provided in the insulating substrate (Figure 2, 34)

Regarding claim 2, Sone discloses a lower electrode predominantly containing platinum (Column 7).

Regarding claim 3, Sone discloses where the lower electrode has a porous body (Column 7).

Regarding claim 6, Sone discloses where the heater is located directly below the moisture sensitive layer (Figure 2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Sakai et al.

Regarding claim 5, Sone does not disclose where the temperature measurement resistor is provided in the insulating substrate. However, Sakai et al. disclose a "Moisture sensitive element and method of manufacturing the same" which shows where the temperature measurement resistor (105 temperature sensor) is provided in the insulating substrate (101, Figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sone to include where the temperature measurement resistor is provided in the insulating substrate as taught by Sakai et al. since this arrangement would make the temperature measurement more accurate.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Sakai et al. as applied to claim 5 above and in further view Kuriowa et al.

Regarding claim 7, neither Sone nor Sakai et al. disclose a temperature measurement resistor located directly below the moisture sensitive layer. However, Kuriowa et al. disclose a "Polymer capacitive moisture sensitive device comprising heating means" where the temperature measurement resistor (9) is located directly below the moisture sensitive layer (3) (Figure 7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sone to include a temperature measurement resistor located directly

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below the moisture sensitive layer as taught by Kuriowa et al. in order to measure the temperature instantaneously.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Yasuda et al.

Regarding claim 8, Sone discloses an insulating substrate (32), a moisture sensitive layer (42), a lower electrode (36) having a noble metal (Column 7), an upper electrode (40) having a noble metal and porous body (Column 7) and where the upper electrode is joined to the moisture sensitive layer, part of the substrate (Figure 2). Sone does not disclose where the sensor is adapted for measuring humidity in an atmosphere containing a very small amount of oxygen and containing a reducing gas. However, Yasuda et al. disclose in "Method and apparatus for detecting gas" where the sensor is adapted for measuring humidity in an atmosphere containing a very small amount of oxygen and containing a reducing gas (Constitution). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sone to include where the sensor is adapted for measuring humidity in an atmosphere containing a very small amount of oxygen and containing a reducing gas as taught by Yasuda et al. since this lowers the electrical resistance and the air moisture can be determined.

9. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Kampe et al.

Regarding claims 9 and 10, Sone discloses an insulating substrate (32), a moisture sensitive layer (42), a lower electrode (36) having a noble metal (Column 7), an upper electrode (40) having a noble metal and porous body (Column 7) and where the upper electrode is joined to the moisture sensitive layer, part of the substrate (Figure 2). Sone does not disclose where the size of the pores in the upper and lower electrodes is 0.5-20 μ m. However, Kampe et al. disclose a "Method of producing a gas diffusion electrode" which disclose where the size of the pores in the electrode is 20 μ m (Column 3). Therefore, to modify Sone to include where the size of the pores in the electrode is 20 μ m as taught by Kampe et al. is clearly within the purview of the skilled artisan since this modification would give a good opening percentage for calculations. The pore size of one electrode is given. It is clearly within the purview of the skilled artisan to provide both electrodes with this feature since this would give the instrument the ability to have moisture penetrate from the upper and lower electrode.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view Tanino et al.

Regarding claim 11, Sone does not disclose where the moisture sensitive layer is 0.05-0.2 μ m. However, Tanino et al. disclose a "Humidity sensing element" that disclose a moisture sensitive layer that is 0.05-0.2 μ m [0.01-3 μ m] (Column 3). Therefore, it would have been obvious to

modify Sone to include where the moisture sensitive layer is 0.05-0.2 μ m as taught by Tanino et al. since this modification would help to keep particulates from the atmosphere from depositing onto the humidity-sensing parts.

11. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view Möbius et al.

Regarding claims 12 and 13, Sone discloses an insulating substrate (32), a moisture sensitive layer (42), a lower electrode (36) having a noble metal (Column 7), an upper electrode (40) having a noble metal and porous body (Column 7) and where the upper electrode is joined to the moisture sensitive layer, part of the substrate (Figure 2). Sone does not disclose where particles are incorporated in an amount of 1-20 weight percentage of the upper and lower electrode. However, Möbius et al. disclose in "Method of producing fuel cells with solid electrolytes and ceramic oxide electrode layers" particles that are incorporated in an amount of 1-20 weight percentage on the electrode (Column 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sone to include particles incorporated in an amount of 1-20 weight percentage on the electrode as taught by Möbius et al. since this modification would give good resistance-humidity characteristics. The weight percentage of one electrode is given. It is clearly within the purview of the skilled artisan to provide both

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electrodes with this feature since this would give the instrument the ability to have moisture penetrate from the upper and lower electrode.

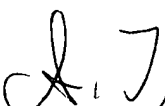
Response to Arguments


12. Applicants' arguments with respect to claims 2-13 have been considered but are moot in view of the new grounds of rejection.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (703) 305-1522. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A.J. 
August 14, 2003


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800